

# Installation and Configuration Guide for H8 iDS 7series Face Capture Function

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# Chapter 1 Product Introduction

## 1.1 Face Capture Function Introduction

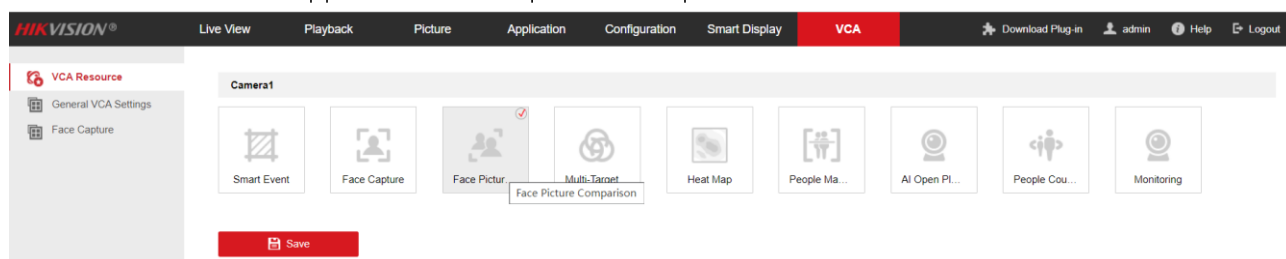
Face Capture is a function to detect, capture and upload image of targets of face. The target features will be abstracted at the same time. Supported attributes are as below.

Attributes	Details
Gender	Male, Female, Unknown
Age	0-100, Unknown
Age Group	0-2 "infant"; 3-6 "kid"; 7-14 "child"; 15-17 "teenager"; 18-24 "youth"; 25-34 "prime"; 35-56 "middle"; 57-67 "middle-aged"; 68-100 "old"; others "unknown"
Face Expression	Surprised, Scared, Hatred, Happy, Sad, Angry, No Expression
Wearing Glasses	Wearing sunglasses, wearing glasses (ordinary glasses), not wearing glasses, unknown
Wearing Mask	Yes, No, Unknown
Wearing Hat	Yes, No, Unknown
Face Score	Range 0-100

In addition to the face capture VCA resource, the Face Picture Comparison and multi-Target-Type detection can also support face capture. The difference between these functions is that face picture comparison mode supports comparing captured pictures with face pictures in library and output comparison result. Comparison result can trigger certain actions when arming schedule and linkage method are set. When the similarity of the detected face and the face picture in library reaches certain threshold, the device will upload the comparison result and related alarm information.

Multi-Target-Type detection is a function to detect, capture and upload image of targets of face, human body and vehicle types and abstract features at the same time.

This document is also applicable to face picture comparison function.



## 1.2 Supported Models

	Appearance	Model	Accessories (Optional)	Application
Box Camera		iDS-2CD70X660-AP/(F11) (C)	Wall mount: 302700585 DS-1292ZJ Pendant mount: 302701248 DS-1299ZJ	Indoor camera that are not waterproof Lens needs to be purchased separately

Box with Housing		iDS-2CD70X660/E-IHSY/(F11) (C)	Wall mount: 302702937 DS-1293ZJ-Y Horizontal Pole Mount: 302703076 DS-1214ZJ-L-Y2	<b>Outdoor</b> camera 3.8-16mm and 11-40mm focal length are selectable
Bullet Camera	 	iDS-2CD7AX660-IZHS(Y) (C)  iDS-2CD7AX760-XZHS(Y)	Corner Mount: 302701861 DS-1476ZJ-SUS Vertical Pole Mount: 302701860 DS-1475ZJ-SUS	7AX6: <b>Outdoor</b> camera that support Motorized Variable focal Lens 2.8-12mm and 8-32mm focal length are selectable 7AX7: <b>Outdoor</b> camera that support Motorized Variable focal Lens, Focal length : 2.8-12mm Support IR and white lite hybrid illuminate
Dome Camera		iDS-2CD71X660-IZHS(Y) (D)	Pendant Mount: 302700357 DS-1271ZJ-160	<b>Indoor</b> Dome Camera that support Waterproof and Motorized Variable focal Lens. 2.8-12mm and 8-32mm focal length are selectable
PTRZ Dome Camera		iDS-2CD75X760-XZHS(Y)	Wall mount: 302700353 DS-1273ZJ-160 Junction box: 302703390 DS-2280ZJ-WA160 Weather shield: 190228064	<b>Outdoor</b> Dome Camera that support PTRZ Focal length : 2.8-12mm

## Chapter 2 Camera Pre Installation

### 2.1 Measure Tools

1. Range finder or steel tape measure: To measure installation height and depth.



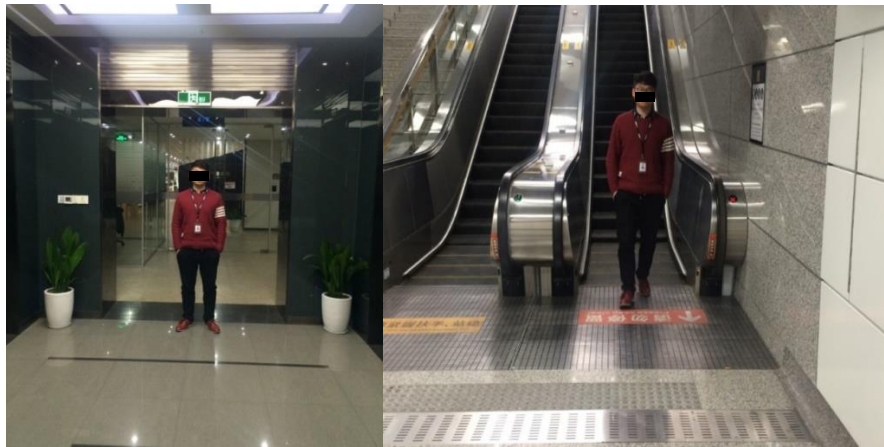
2. Photographic equipment: To take photos of the environment.

## 2.2 Choosing Installation location

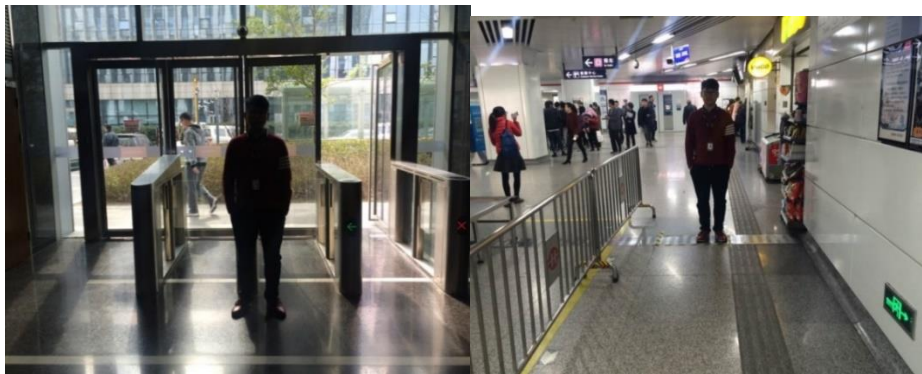
The accuracy rate of face recognition is great involved with installation location, ambient light (such as too dark, too bright) and so on. In order to ensure the better effect, it raises some installation suggestions as follows:

- 1) Installation position should be the standard passageways or the Entrances/ Exits, which insures the direction of traffic is particular and capture the Enter/Leave personnel' faces in the direction.
- 2) Choose the stable lighting condition with adequate illumination. Light compensation is necessary to ensure the facial features are visible under the condition of insufficient light or backlight.

**Example of standard scenario:**



**Example of unsuitable scenario:**



Backlight

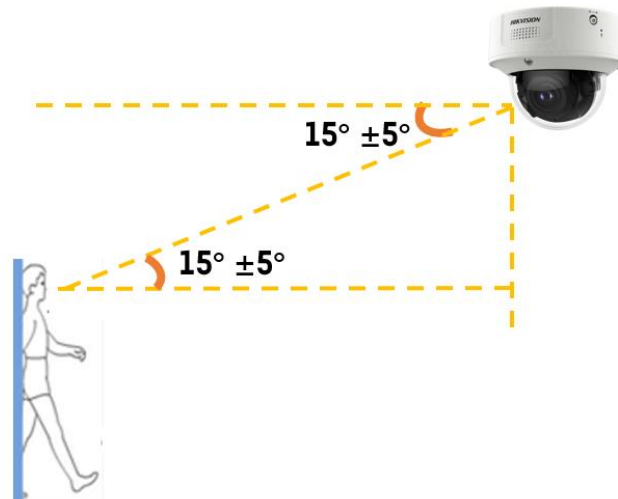
Lack of light

The installation position selection specification of face capture camera is as follows:

- 1) The camera should be installed in the front of passageway and capture the positive face. The horizontal angle of deflection had better be less than 15 °.

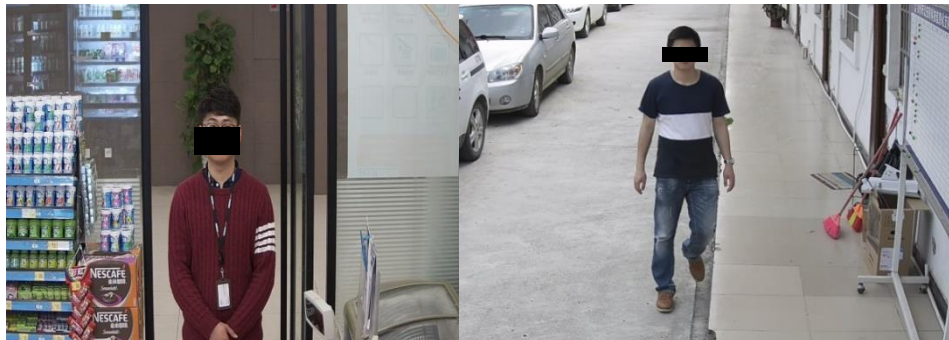


- 2) The installation of camera needs an elevation angle, which avoids the situation that the rear face is obscured when the tandem persons go through the passageway. The depression angle should meet the below requirement:  $\alpha = 15 \pm 5^\circ$ .



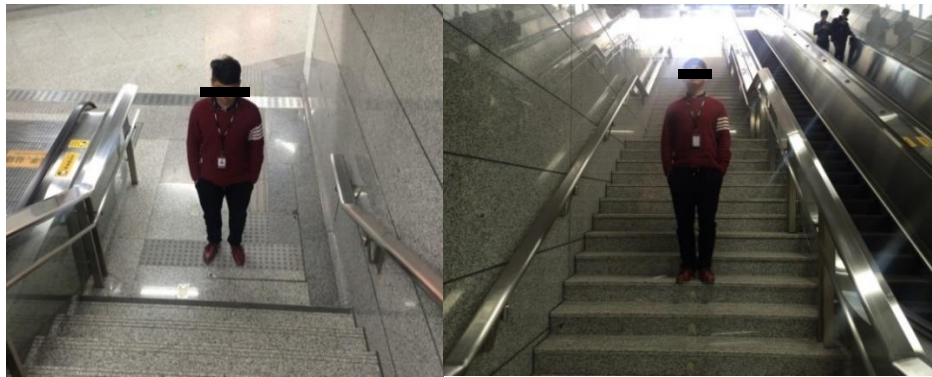
- 3) It requires that the covered Pupil Distance pixels needs to be larger than 40 pixels to distinguish the face details from the captured image. The practical width of face detection should be less than or equal to 3 meters with 2MP camera.
- 4) Make sure that there is no shelter between the camera lens and the passageway.

**Example of standard scenario:**



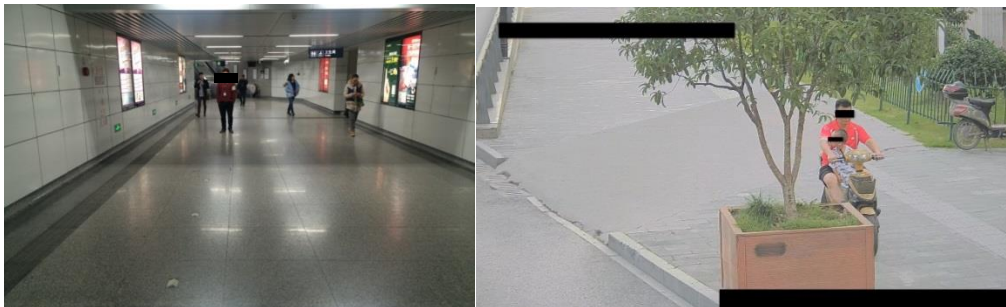
**Example of unsuitable scenario:**





Dip Angle is too large

Elevation Capture



The scenario is too wide

Incline installation, with shelter



The scenario is too large and the face recognition rate is low

## Chapter 3 Installation specification

### 3.1 General Requirements

Different cameras, lens focal lengths and monitoring widths are key points for the different monitoring distance and installation. The conversion relation between them is as follows:

- 1) The horizontal offset angle of the camera needs to be less than **15°**, and the smaller the angle,

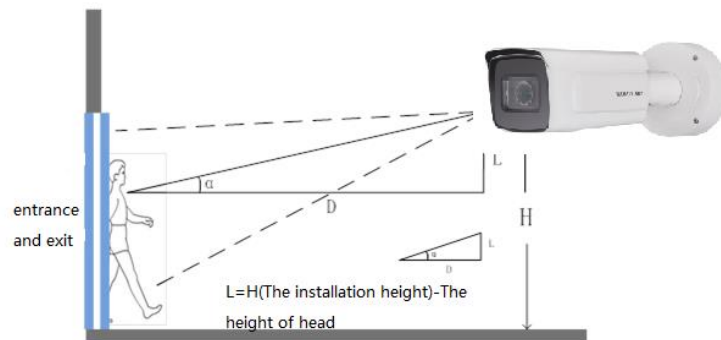
the better.

- 2) The depression angle is recommended as  $10^{\circ} \sim 15^{\circ}$ .
- 3) The selection of lens focal length:  $f \approx 1.9D$
- 4) The height of camera:  $H = \tan(\alpha^{\circ}) \times D + 1.5$

D : The monitoring distance



The height below the head sets as average value 1.5 m

$\alpha$  is the elevation angle,  $\tan(10^{\circ}) \approx 0.18$ ,  $\tan(15^{\circ}) \approx 0.27$



Make sure the camera to be installed meets the installation conditions. Check whether the device accessories are complete and the firmware version is the latest version that supports multi-dimensional people counting function.

## 3.2 Tools Preparation

Cables	At least 2 Network cables For connecting camera and computer	
Tools	Computer	



Range finder or steel tape measure:  
To measure installation height and  
depth.



Electric drill: Used for wall drilling  
installation.



Lifting bracket: Check the image at the  
corresponding height



	Ladder: Used for installation	
Software	<p><b>SADP software:</b> Used for active camera, check and modify the IP address of IP camera</p> <p>Download Link:  <a href="https://www.hikvision.com/en/support/tools/hitools/">https://www.hikvision.com/en/support/tools/hitools/</a> </p>	

## 3.3 Installation Position and Lens Query Table

For 7 series face capture camera:

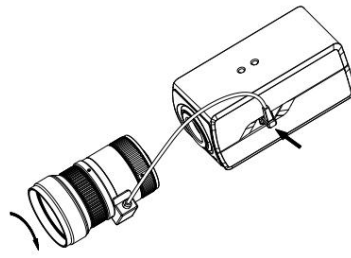
Camera Model	Monitoring Width W	Lens Focal Length	Monitoring Distance	Installation Height of Camera	Elevation angle $\alpha^\circ$
2MP	2.5m	2.8-12mm	2.8m	2.0m	10°
2MP	2.5m	2.8-12mm	4.1m	2.2m	10°
2MP	2.5m	8-32mm	2.8m	2.0m	10°
2MP	2.5m	8-32mm	5.6m	2.5m	10°
2MP	2.5m	8-32mm	8.3m	3.0m	10°
2MP	2.5m	8-32mm	11.1m	3.5m	10°
4MP	3.3m	2.8-12mm	3.4m	2.1m	10°
4MP	3.3m	2.8-12mm	5.1m	2.4m	10°
4MP	3.3m	3.8-16mm	4.3m	2.3m	10°
4MP	3.3m	3.8-16mm	7.0m	2.76m	10°
4MP	3.3m	8-32mm	3.5m	2.4m	10°

4MP	3.3m	8-32mm	7.0m	3.3m	10°
4MP	3.3m	8-32mm	10.0m	4.1m	10°
4MP	3.3m	8-32mm	14.0m	5.1m	10°
4MP	3.3m	11-40mm	4.8m	2.4m	10°
4MP	3.3m	11-40mm	8.0m	2.9m	10°
4MP	3.3m	11-40mm	13m	3.8m	10°
4MP	3.3m	11-40mm	17m	4.5m	10°
8MP	5.3m	2.8-12mm	5.5m	2.5m	10°
8MP	5.3m	2.8-12mm	8.3m	3.0m	10°
8MP	5.3m	3.8-16mm	2.7m	2.0m	10°
8MP	5.3m	3.8-16mm	7.0m	2.7m	10°
8MP	5.3m	3.8-16mm	11.1m	3.5m	10°
8MP	5.3m	11-40mm	7.6m	2.8m	10°
8MP	5.3m	11-40mm	14m	4.0m	10°
8MP	5.3m	11-40mm	20m	5.1m	10°
8MP	5.3m	11-40mm	27.7m	6.5m	10°

## 3.4 Installation Steps

### 3.4.1 Box Camera

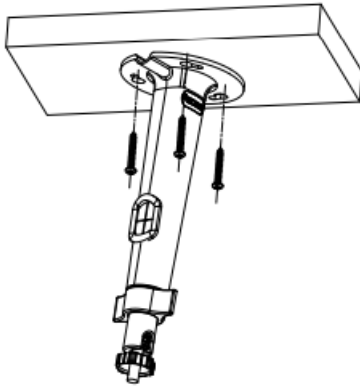
1. Lens Installation
  1. Remove the lens protection cover on the camera.
  2. Align the lens with the camera lens mounting interface, rotate the lens clockwise, and put it firmly in place.
  3. Plug the cable of the lens into the connector on the side of the camera body.



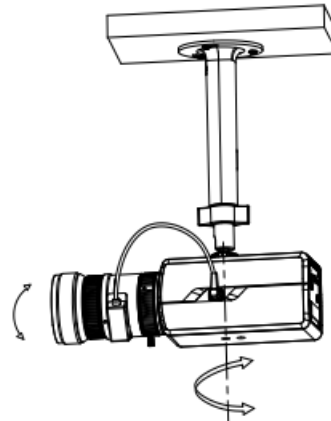
4. If it is varifocal lens, rotate the FAR/NEAR to adjust the focal, rotate TELE/WIDE to focus.



## 2. Pendant Mounting

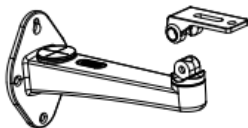


1

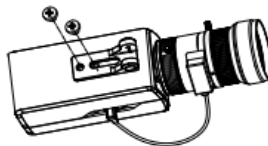


2

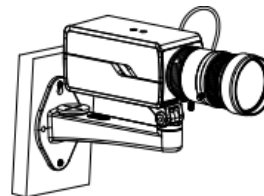
## 3. Wall Mounting



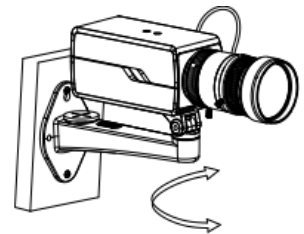
1



2



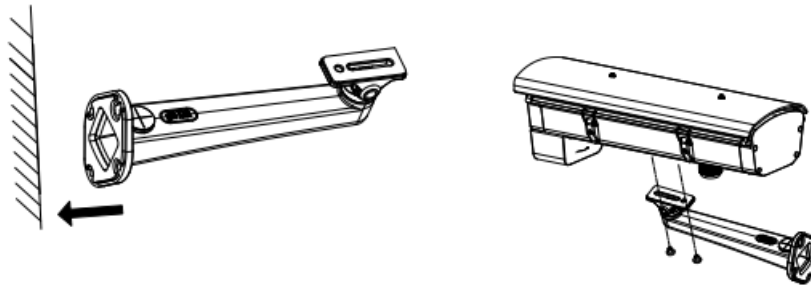
3



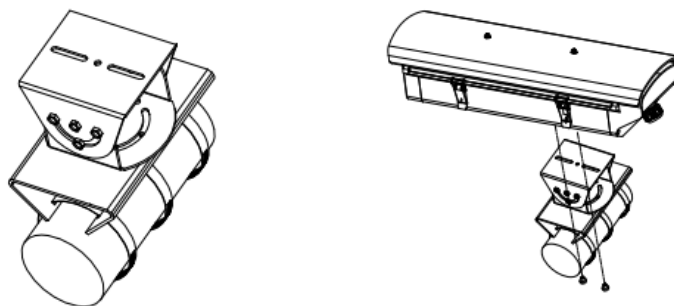
4

## 3.4.2 Box Camera with Housing

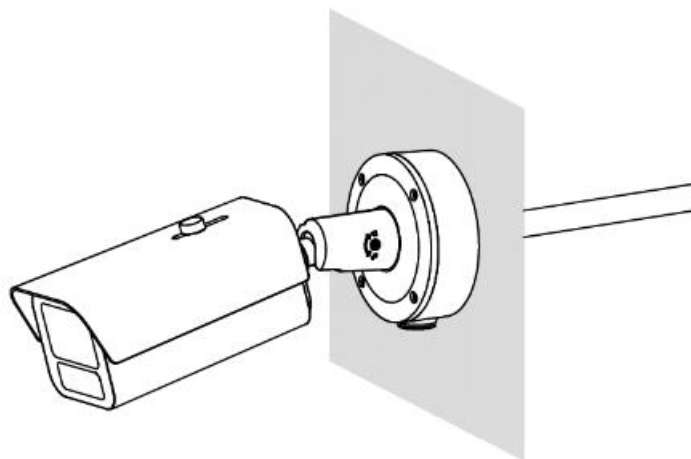
### 1. Wall Mounting



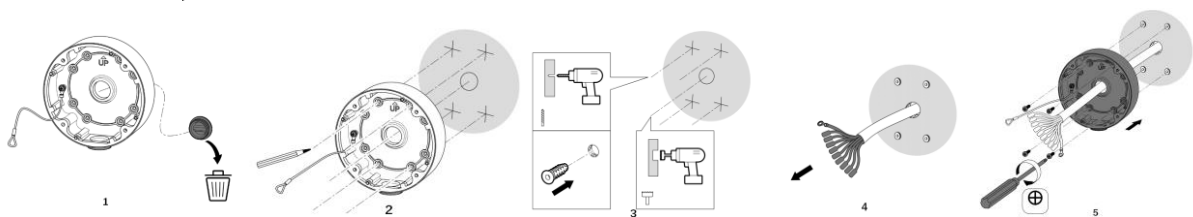
### 2. Horizontal Pole Mounting



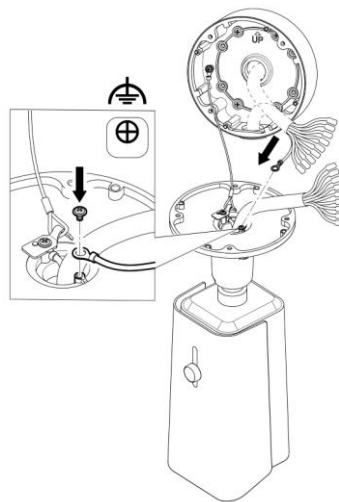
## 3.4.3 Bullet Camera



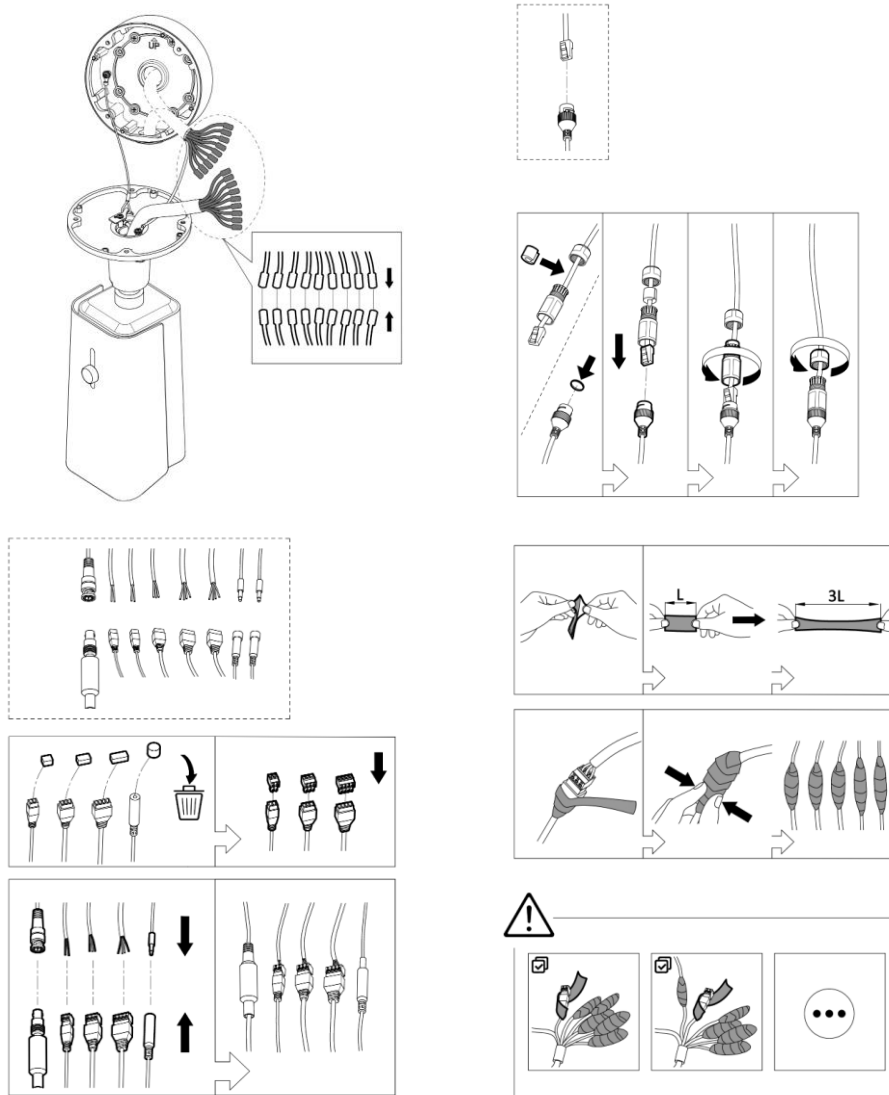
### 1. Install the junction box.



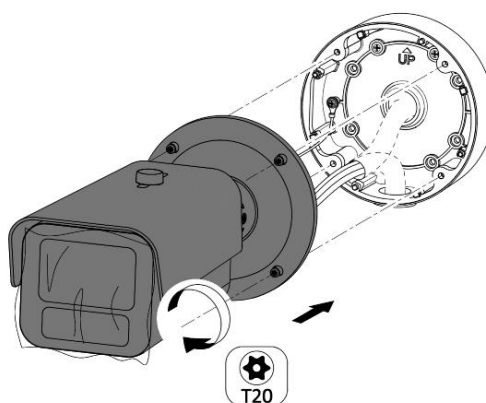
### 2. Connect safety rope.



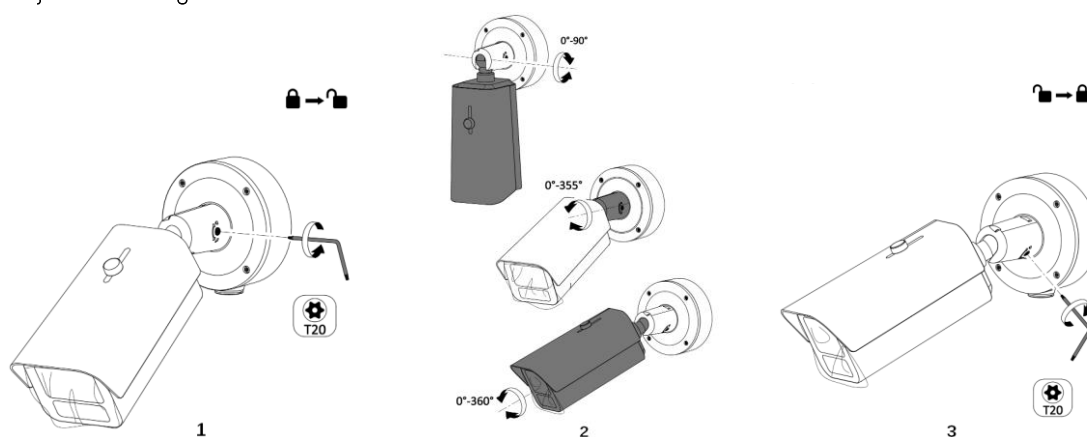
3. Connect cables. Install waterproof jack to network cable, wrap waterproof tape around other interfaces.



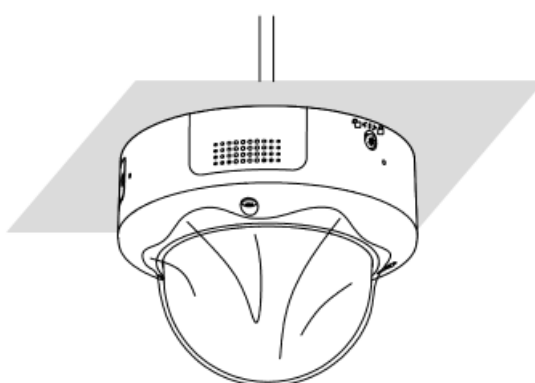
4. Install camera to junction box.



5. Adjust the angle.

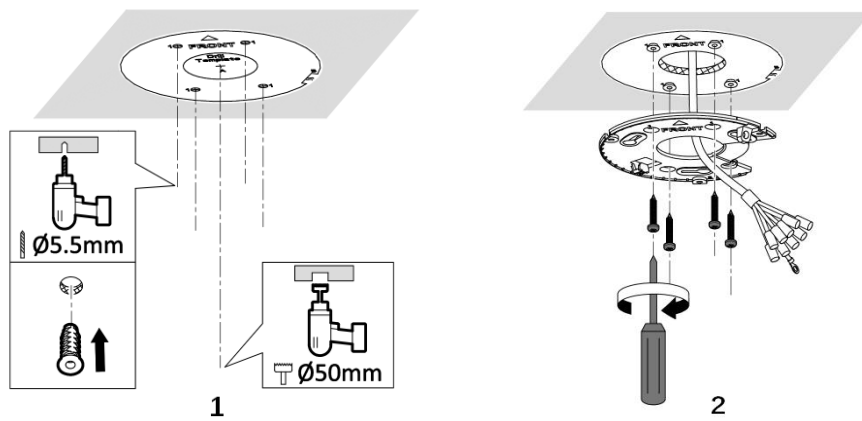


## 3.4.4 Dome Camera

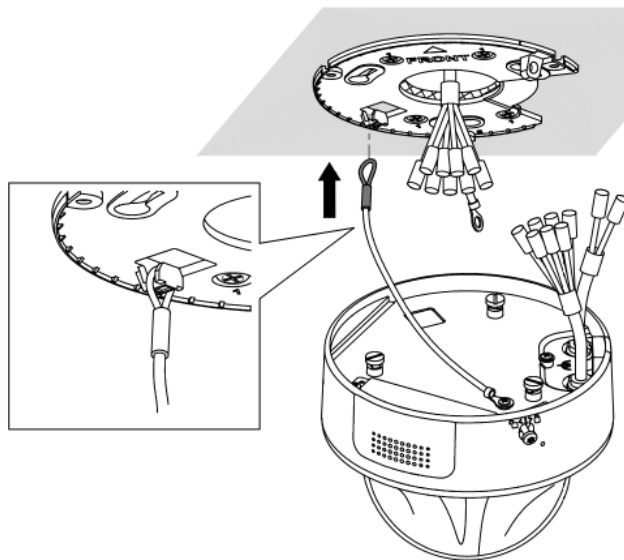


1. Mounting adapter

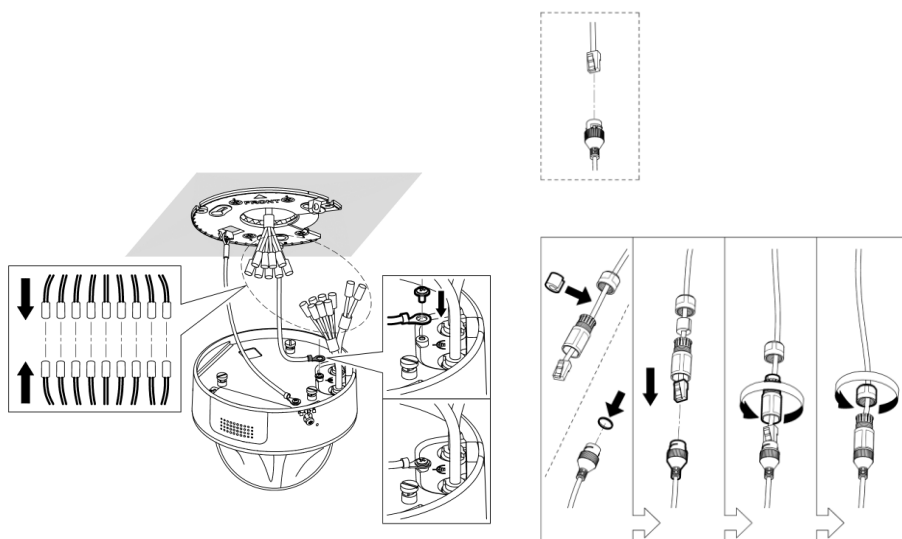


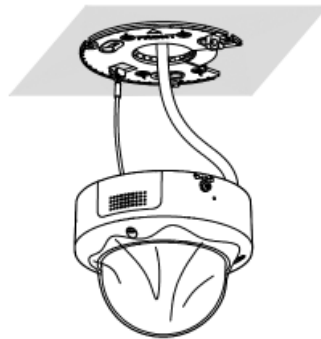
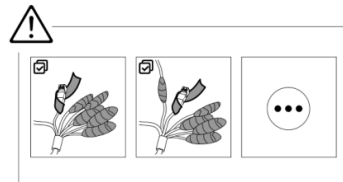
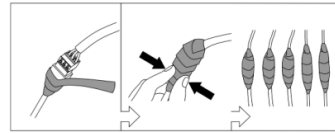
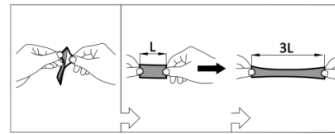
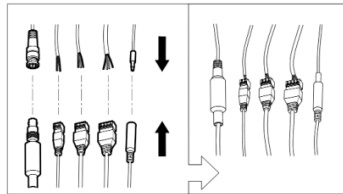
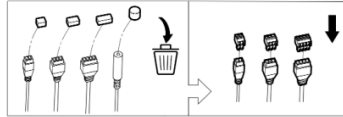
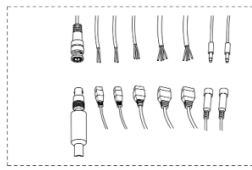


2. Connect safety rope.

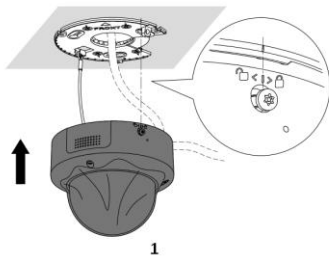


3. Connect cables. Install waterproof jack to network cable, wrap waterproof tape around other interfaces.

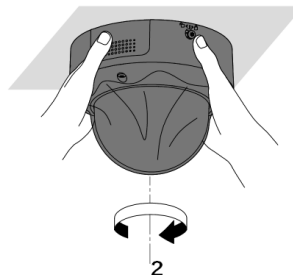




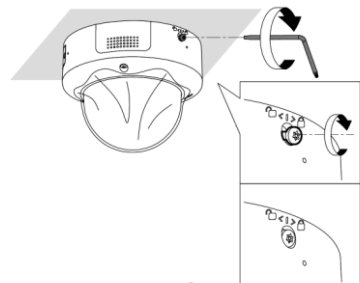
4. Install camera to adapter.



1

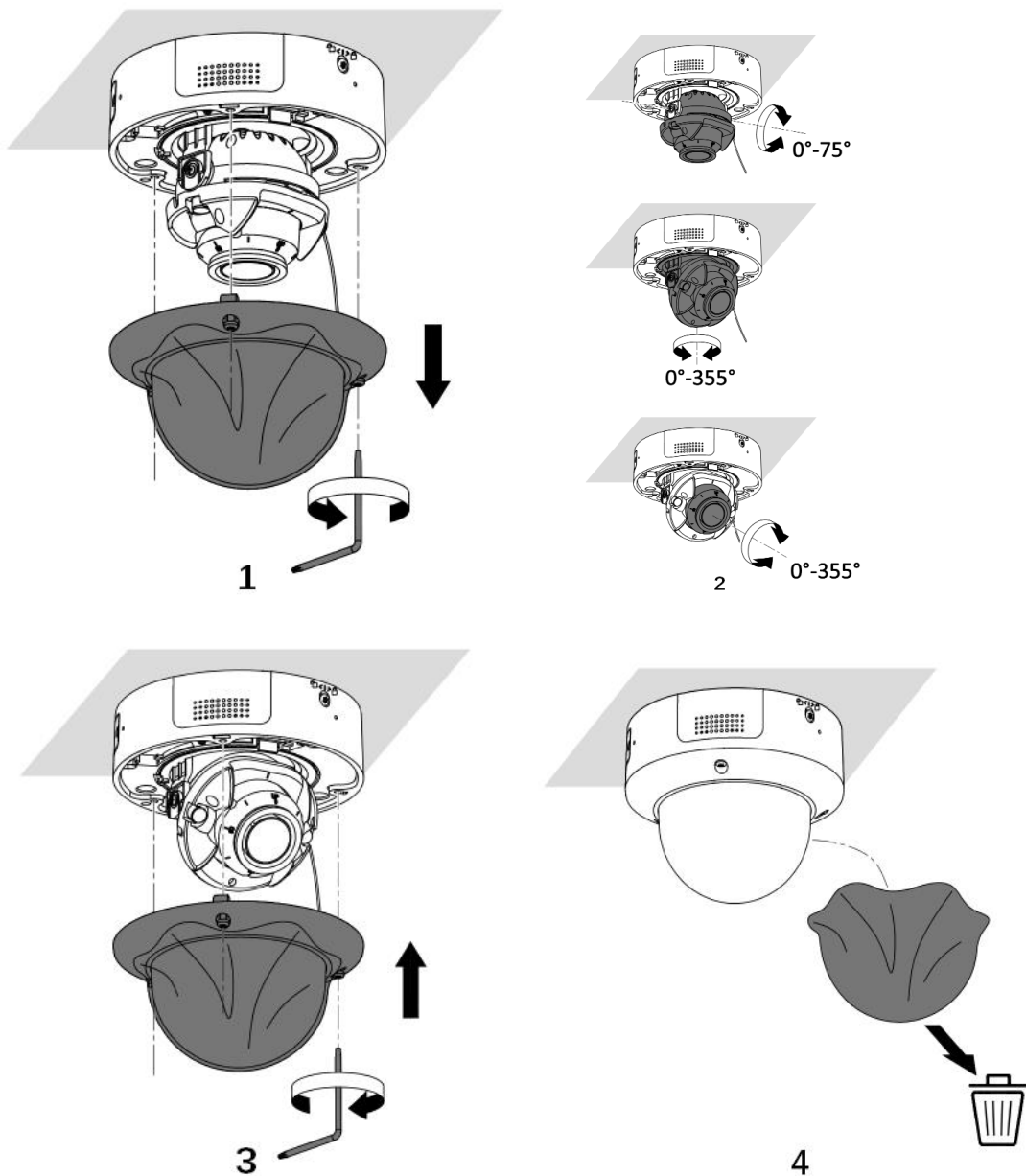


2



3

5. Adjust the lens angle.



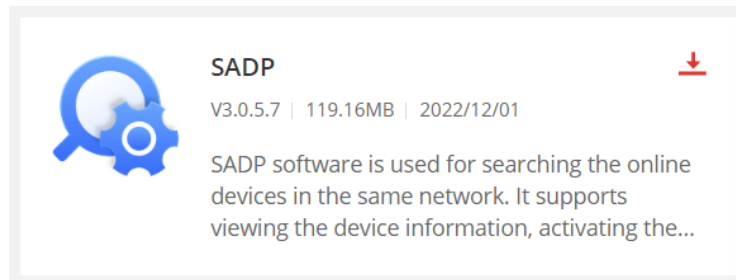
### 3.5 Checklist

1. Camera works properly after power on.
2. The tail line of the device shall be waterproofed according to the requirements.\
3. The elevation Angle and horizontal Angle of camera are within the standard range:  
The horizontal offset angle of the camera needs to be less than  $15^{\circ}$ , and the smaller the angle, the better.  
The recommended depression angle is  $10^{\circ}$ - $15^{\circ}$ .

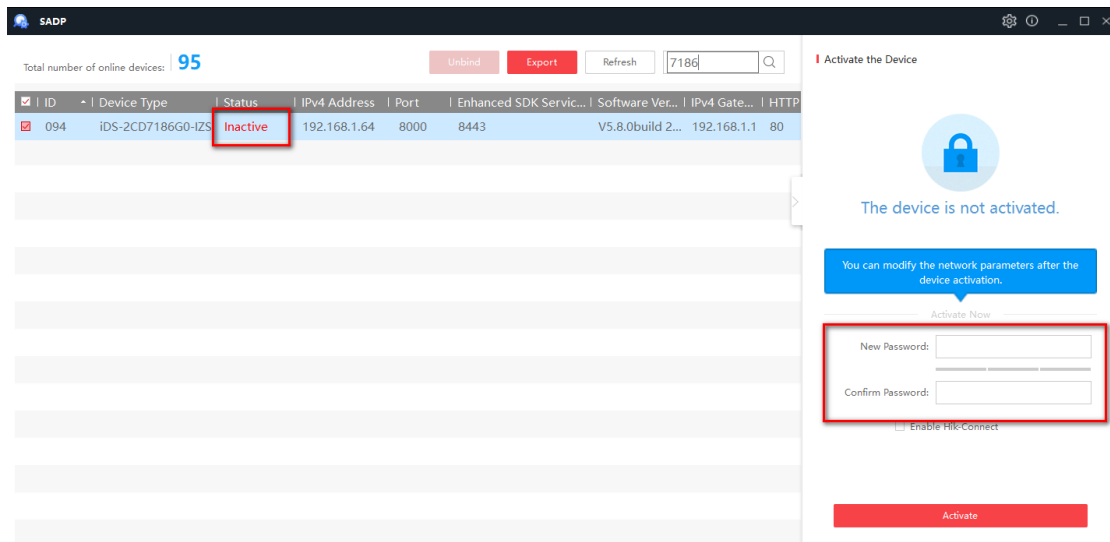
## Chapter 4 Camera Configuration

### 4.1 Camera Activation and Accessing

1. Access <https://www.hikvision.com/en/support/tools/hitools/> to download and install SADP software.

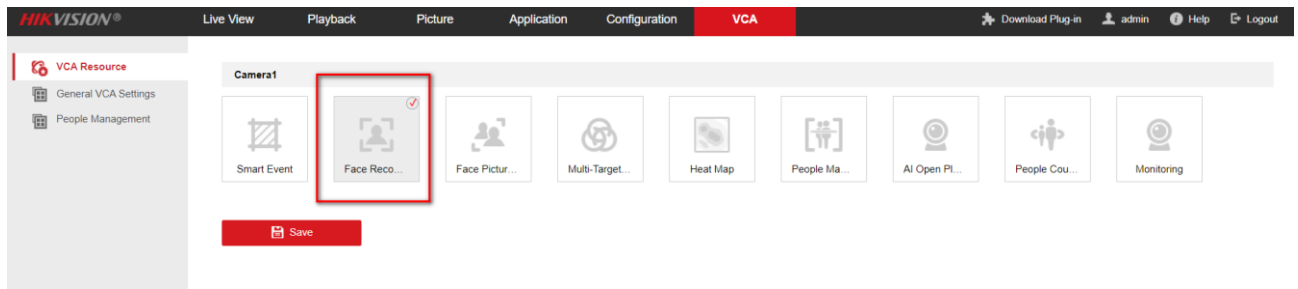


2. Connect the camera to the same network as computer using the network cable.
3. Run SADP software to search the camera.
4. Check Device Status from the device list, and select **Inactive** device.
5. Create and enter the new password in the password field, and confirm the password.



### 4.2 Switch VCA Resource

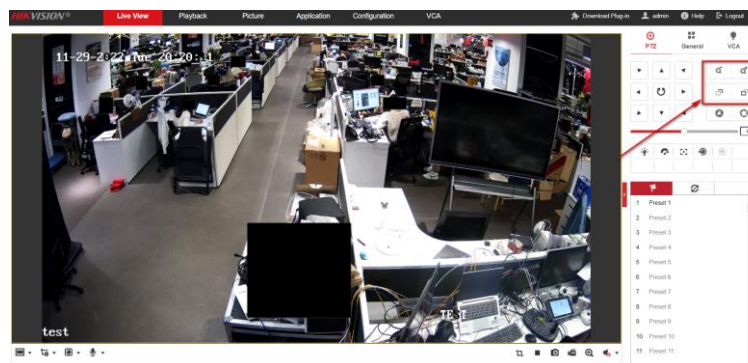
Enter [VCA]-[VCA Resource], select the VCA Resource to Face Recognition, Then Click "Save", switch the to Face Recognition mode.



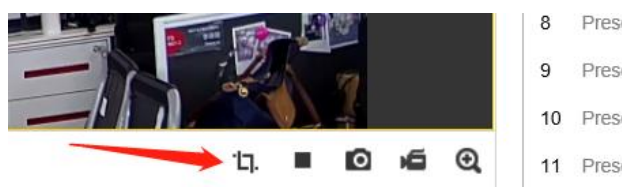
## 4.3 Adjust Camera Image

7 series except the box camera supports Motorized Variable focal Lens, we can zoom and focus on camera web interface.

1. Enter Live View page, click zoom + and zoom – on PTZ control interface, to ensure that can see the whole body (from head to toe) and their movements path in the video, the pixels of the Pupil Distance is not less than 40 pixels.





2. The pixel value of target height can be measured through the pixel calculator in the web interface.



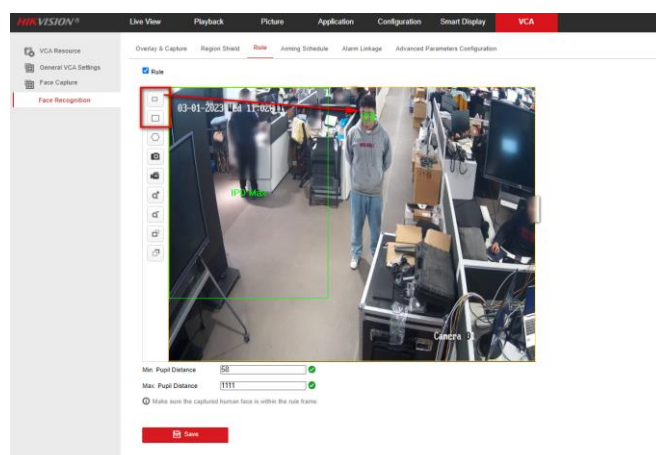



## 4.4 Rule Configuration

1. Enter [VCA]- [Face Recognition] -[Rule] interface, check the checkbox of Rule to enable rules of face capture.

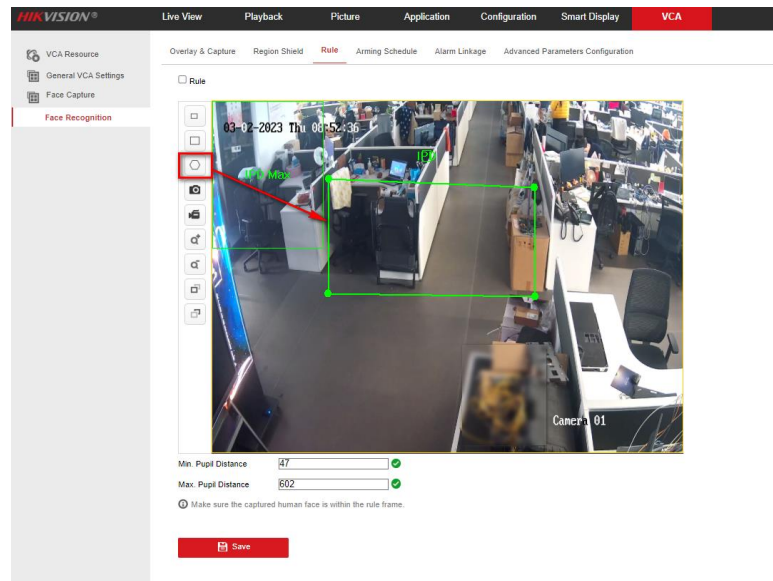
2. Click  and draw min. pupil distance of this scene. Click  and draw max. pupil distance of this scene.

Min. Pupil Distance and Max. Pupil Distance are used to control the size of the captured face. Different image resolutions require different box sizes. With 1080P resolution as an example, the size value of "Min Pupil Distance" shouldn't be less than 40, and 60 is recommended. It is recommended to set Min. Pupil Distance by drawing the box instead of entering the number directly.



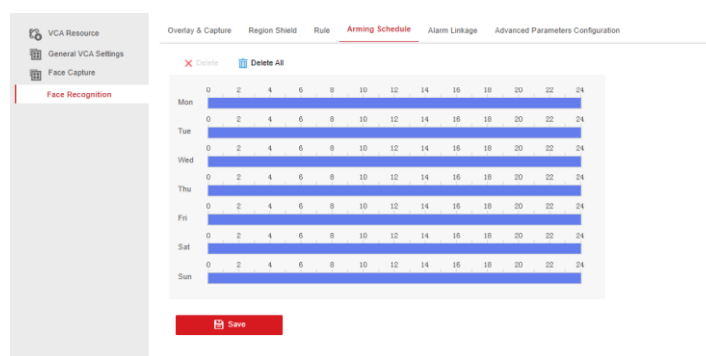
3. Click  and draw detection area on live image. You can draw a rectangle or polygonal (up to 10 sides) face detection area. The minimum value is 28\*28 pixels and the maximum size is to cover

the full screen. Detection area is generally recommended to be drawn as the half of the screen area size, no more than two-thirds of the picture.



4. Click **Save** to save the configuration.
5. Enter [Alarm Schedule] interface to set arming schedule. Default arming schedule is 7 × 24 hours, you can configure according to the actual requirements.
  - 1) Click on the time bar and drag the mouse to select the time period. Click **Delete** or **Delete All** to delete the configured schedule.
  - 2) Move the mouse to the end of each day, a copy dialogue box pops up, and you can copy the current settings to other days.

**Note:** The time of each period can't overlap. Up to 8 periods can be configured for each day.



6. Enter [Alarm Linkage] interface to set linkage method. Notify surveillance center, upload to FTP/Memory Card/NAS and trigger alarm output are selectable. You can specify the linkage method when an event occurs.



- 1) **Notify Surveillance Center:** Send an exception or alarm signal to remote management software when an event occurs.
  - 2) **Upload to FTP/Memory Card/NAS:** Capture the image when an alarm is triggered and upload the picture to a FTP server, local memory card, or network attached storage (NAS).
  - 3) **Trigger Alarm Output:** Trigger one or more external alarm outputs when an event occurs.
- Note:** Go to Configuration > Event > Basic Event > Alarm Output > Alarm Schedule page, set the arming schedule of the alarm output.

## 7. Advanced Parameters Configuration

- 1) **Upload Feature:** Feature stands for the feature information the algorithm can tell from face pictures. For example, gender, age group, facial expression, wearing glasses or not, etc. Check the function to upload the information.

**Note:** With upload feature enabled, the frequency of capture and comparison will decrease.

2) Choose **Best Shot** or **Quick Shot** mode.

- **Best shot:** The camera will capture and upload the best face picture after the person leave the area.

**Capture Times:** Refers to the capture times a face will be captured during its stay in the configured area.

**Capture Threshold:** It stands for the quality of face to trigger capture and alarm. Higher value means better quality should be met to trigger capture and alarm.

**Capture Parameters**

☒ Upload Feature

Face Capture Mode      ☒ Best Shot      ☐ Quick Shot

Capture Times     

Capture Threshold

- **Quick shot:** The camera will capture the face image at the first time when the face grade to the capture threshold.

**Quick Shot Threshold:** It stands for the quality of face to trigger quick shot.

**Max. Capture Interval:** It describes the max. time occupation for one quick shot.

**Capture Times:** Refers to the capture times a face will be captured during its stay in the configured area.

**Capture Parameters**

☒ Upload Feature

Face Capture Mode      ☐ Best Shot      ☒ Quick Shot

Quick Shot Threshold     

Max. Capture Interval      s

Capture Times      ☐ Unlimited      ☒ Limited


3) **Face Exposure:** Check the checkbox to enable the face exposure. The device automatically adjusts exposure level when human faces appear in the scene.

**Reference Brightness:** The reference brightness of a face in the face exposure mode. If a face in the actual scene is brighter than the set reference brightness, the device lower the exposure level. If a face in the actual scene is darker than the set reference, the device increases the exposure level.

**Min. Duration:** The extra time the device keeps the face exposure level after the face disappears in the scene.


☒ Face Exposure

Reference Brightness  31

Min. Duration  2 minute(s)


Face Filtering Time  0 s

 The Filtering Time only works in Best Shot mode. If the Filtering Time is changed, the actual capture times may be less than the set times.

- 4) **Facial Posture Filter:** To filter out face of certain postures. The figure on the right of the slider stands for the posture angle which is acceptable in the face capture action. Click  to display the diagram illustrating the face turning direction when setting up this filter.

☐ Facial Posture Filter

Rotational Angle-Left  70 Degree 

Rotational Angle-Right  70 Degree


Deflection Angle-Upper  50 Degree 

Deflection Angle-Lower  50 Degree

 If Face Posture Filter is enabled, the camera may not capture the qualified image.

- 5) **Restore Default:** Click Restore to restore all the settings in advanced configuration to the factory default.

**Restore Parameters**

Restore Defaults 

8. You can configure overlay information on captured picture, picture type and quality, etc on **Overlay & Capture** interface.

**HIKVISION** Live View Playback Picture Application Configuration Smart Display **VCA**

Overlay & Capture Region Shield Rule Alarm Schedule Alarm Linkage Advanced Parameters Configuration

VCA Resource  
General VCA Settings  
Face Capture  
Face Recognition

**Display on Stream**

☒ Display VCA Info. on Stream

**Display on Picture**

☐ Display Target Info. on Alarm Picture

**Snapshot Settings**


Target Picture Settings


☒ Custom ☐ Head Shot ☐ Half-Body Shot ☐ Full-Body Shot

Target Picture Size

Width: Facial Width × 1.8  
Head Height: Facial Height × 1.8  
Body Height: Facial Height × 0.5

☐ Fixed Value Picture Height 100 pixel

☐ Face Beautification Level  50

☐ Face Sharpening Sharp  50

Background Picture Set...

Picture Quality High

Picture Resolution 2560\*1440


☒ Background Upload


☒ Face Picture

**Text Overlay**

☐ Device No. ☐ Camera Info. ☒ Capture Time ☒ GPS ☐ Pupil Distance

Type	Sorting
Capture Time	↑ ↓
GPS	↑ ↓

 Diagram

 Save

- 1) **Display VCA Info. on Stream:** Enable the function, green frames will be displayed on the target if in a live view or playback.
- 2) **Display Target info. on Alarm Picture:** Enable the function, there will be a frame on the target on the uploaded alarm picture.
- 3) **Snapshot Settings**

**Target Picture Settings:** You can set the face picture type by selecting Custom, Head Shot, Half-Body Shot, or Full-Body Shot. If you select Custom, you can define detailed picture width and height of a picture freely. If the captured pictures should have the same picture height, check **Fixed Value** and input desired picture height.

**Background Picture Settings:** Comparing to target picture, background picture is the scene image offers extra environmental information. You can set the background picture quality and resolution.

If the background picture need to be uploaded, check **Background Upload**.

If target picture need to be uploaded, check **Face Picture**.

**Snapshot Settings**

**Target Picture Settings**

☒ Custom
 ☐ Head Shot
 ☐ Half-Body Shot
 ☐ Full-Body Shot

Target Picture Size

Width: Facial Width ×

Head Height: Facial Height ×

Body Height: Facial Height ×

☐ Fixed Value
 

Picture Height  pixel

☐ Face Beautification
 

Level

☐ Face Sharpening
 

Sharp...

**Background Picture Set...**

Picture Quality

Picture Resolution

☒ Background Upload  
☒ Face Picture

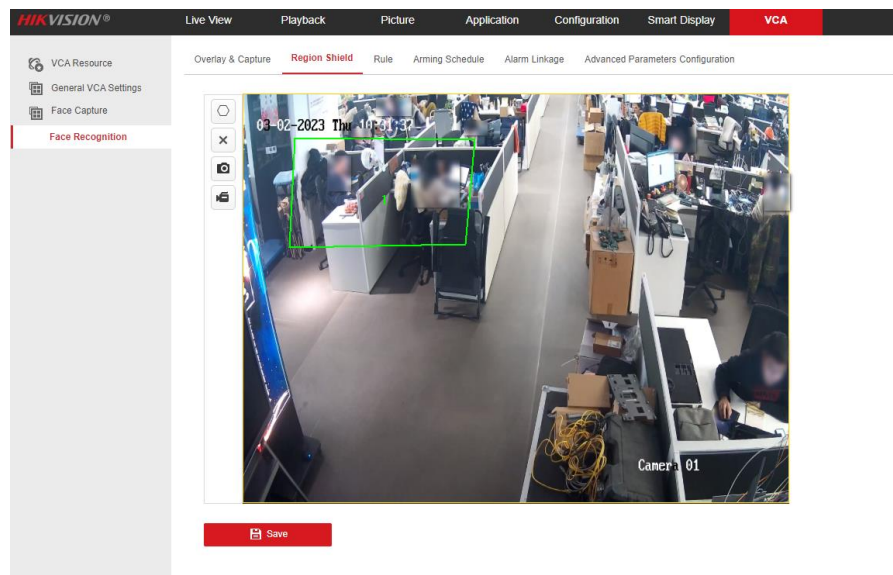
- 4) **Text Overlay:** Check desired items to be displayed on alarm picture. You can sort the information display via the up and down arrows.

**Text Overlay**

☒ Device No.
 ☐ Camera Info.
 ☒ Capture Time
 ☐ GPS
 ☐ Pupil Distance

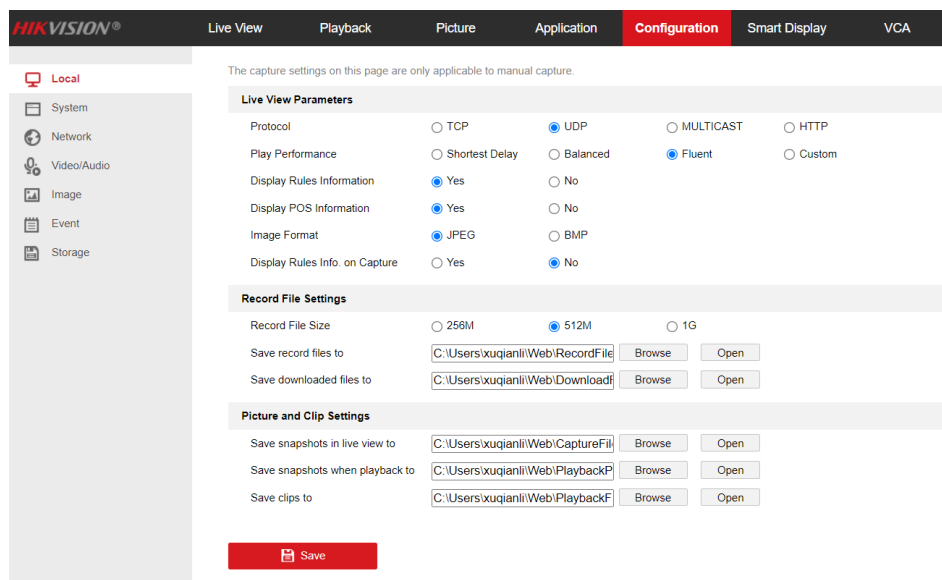
Type	Sorting
Capture Time	<input style="width: 15px; height: 15px; border: none; background: none;" type="button" value="↑"/> <input style="width: 15px; height: 15px; border: none; background: none;" type="button" value="↓"/>
Device No.	<input style="width: 15px; height: 15px; border: none; background: none;" type="button" value="↑"/> <input style="width: 15px; height: 15px; border: none; background: none;" type="button" value="↓"/>

9. **Shield Region:** Do **not** set shield region unless you want to block some area where **no need** to capture faces.



## 4.5 Face Capture Demonstration

1. Enter [configuration]-[local], set the [play performance] as fluent, Enable [Rules]. Then Click "Save" when finishing the configuration, as shown in the below picture. Then you will find face capture detect region displayed on live view image.



2. Enter [VCA]- [Face Recognition] -[Overlay& Capture]-[Snapshot Settings], check Face picture.

**Snapshot Settings**

**Target Picture Settings**

☒ Custom
 ☐ Head Shot
 ☐ Half-Body Shot
 ☐ Full-Body Shot

Target Picture Size

Width: Facial Width ×   
 Head Height: Facial Height ×   
 Body Height: Facial Height ×

☐ Fixed Value
 ☐ Face Beautification
 ☐ Face Sharpening

Picture Height:  pixel  
 Level:  50  
 Sharp...:  50

**Background Picture Set...**

Picture Quality:   
 Picture Resolution:

☒ Background Upload  
☒ Face Picture

3. Enter [Smart Display] interface to check real-time capture.

